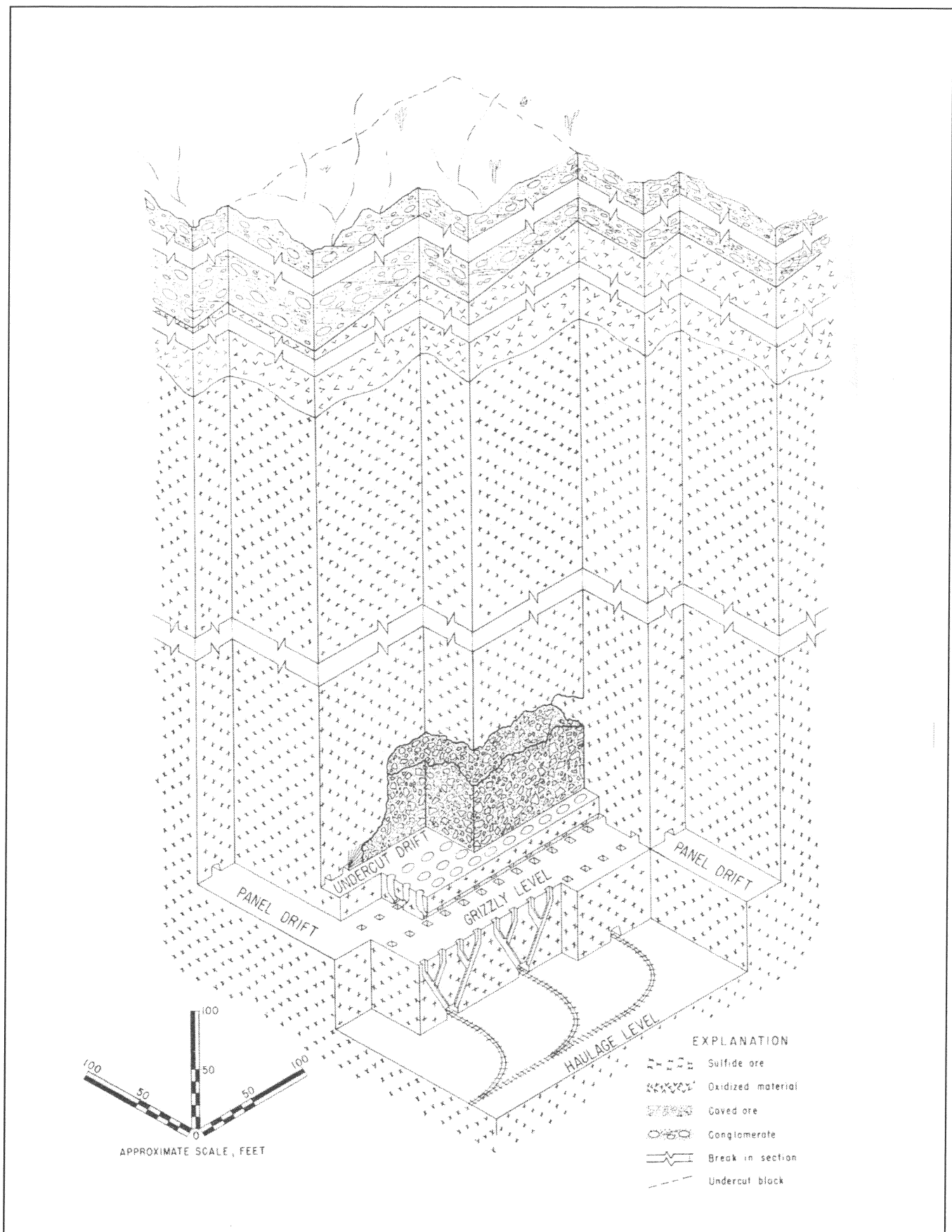


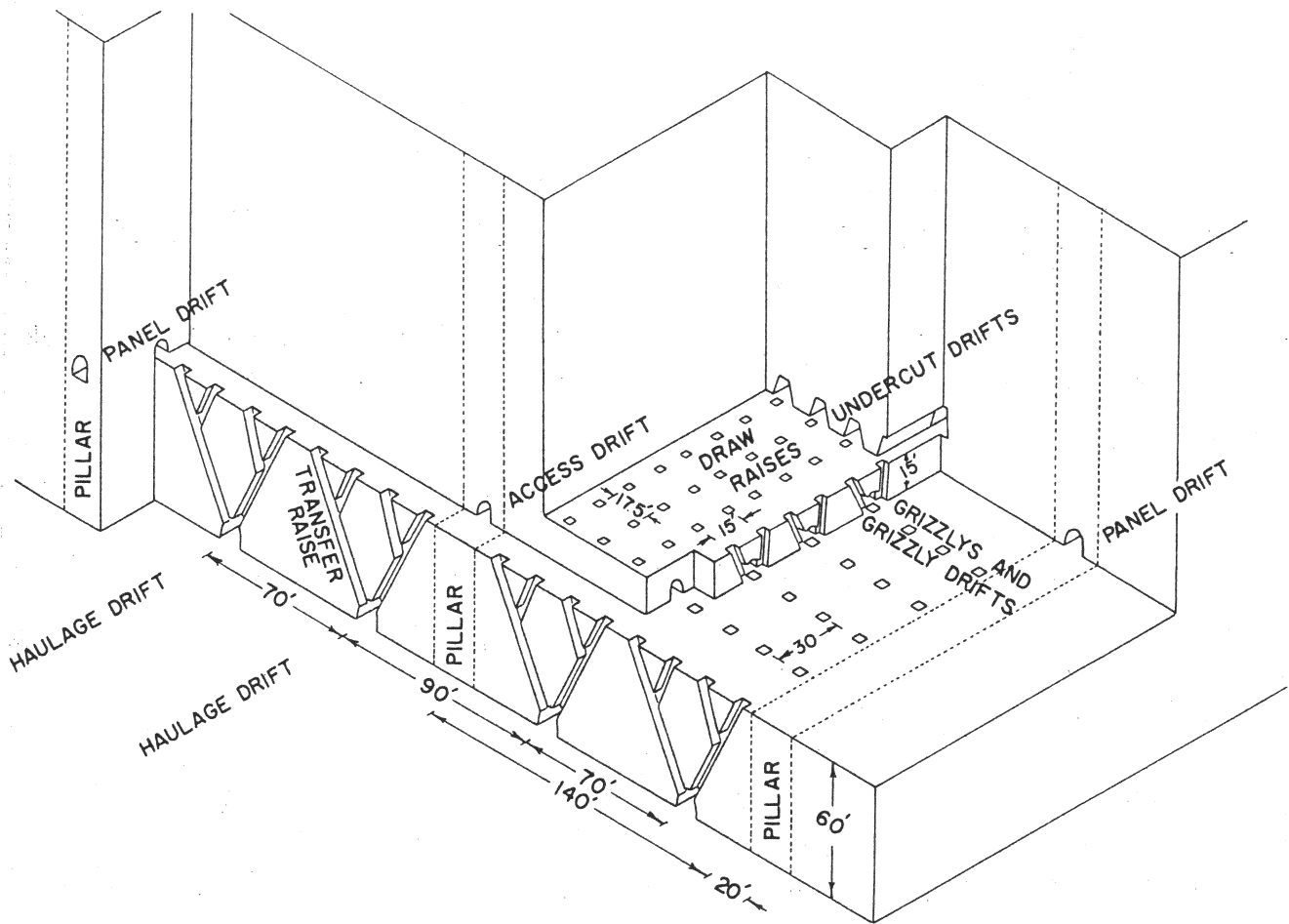
# Block Caving Mining Diagrams

The following graphics have been abstracted to display the methods of underground block caving methods utilized at San Manuel



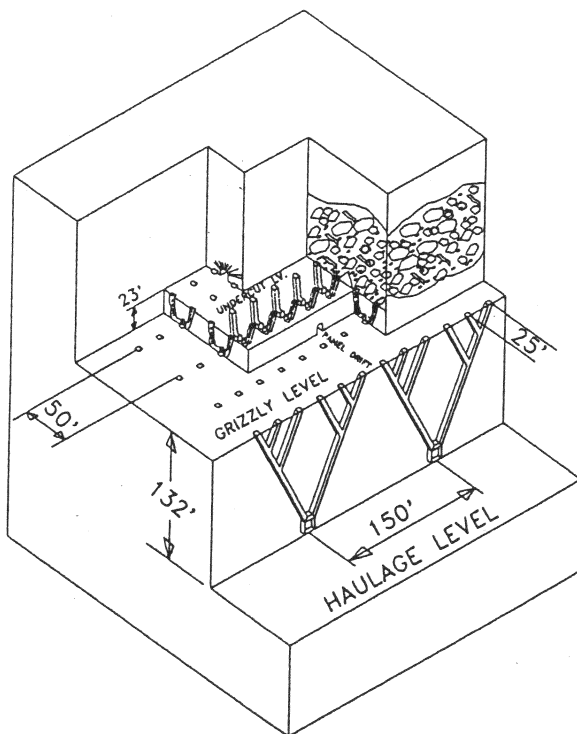
### Generalized Diagram Of A Block Caving Method

From: U.S Bureau of Mines ROI 6204; Measurements of Surface Subsidence, San Manuel Mine, Pinal County Arizona, Johnson Soule, 1963

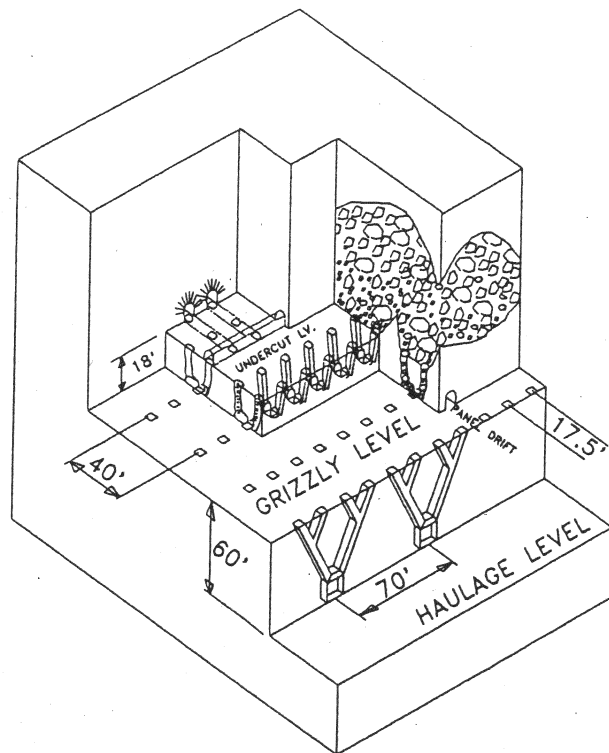


**Diagrams Abstracted From:**

Tiobie, Thomas & Richards, San Manuel Mine, Magma Copper Co.  
 SME Mining Engineering Handbook. Vol. 1, Cummings, Given 1973

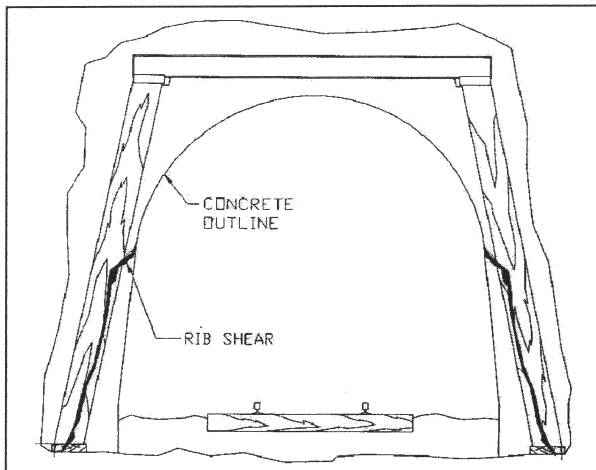
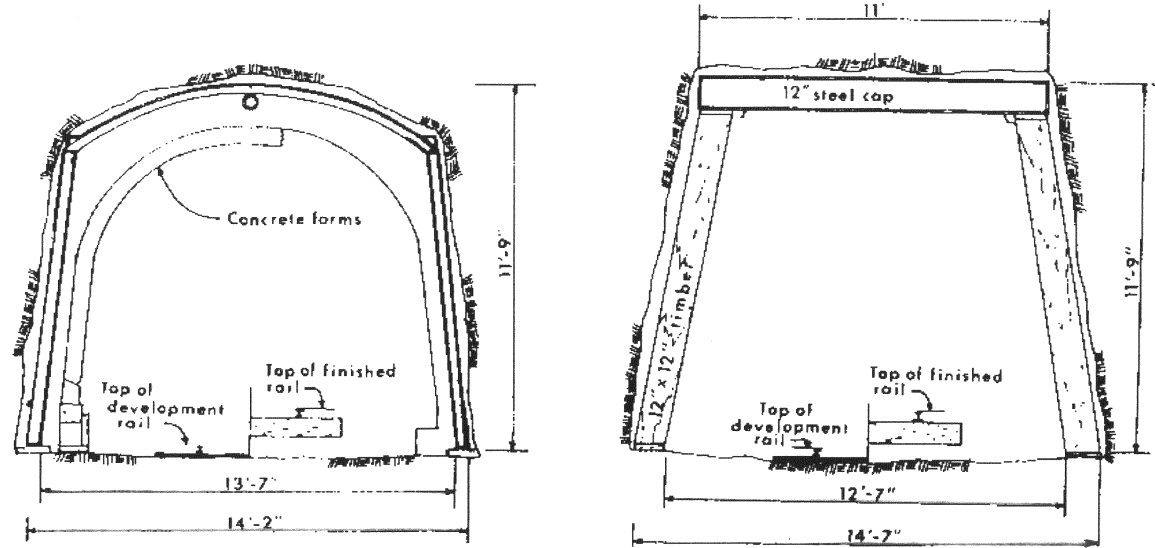


HYBRID DESIGN

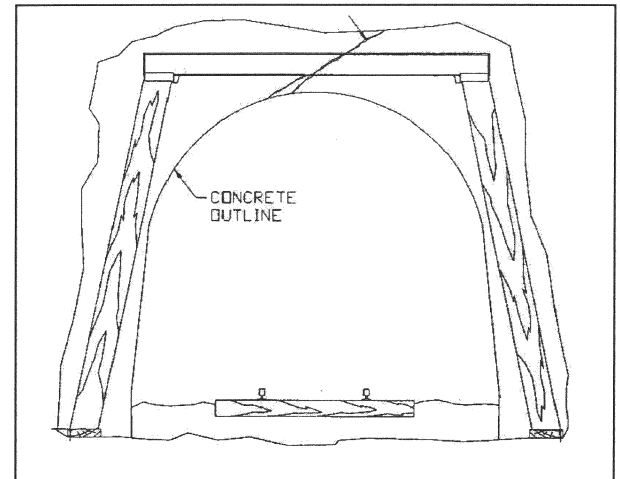


CONVENTIONAL DESIGN

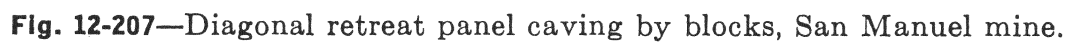
## Typical drift profile and ground support at San Manuel Mine



Typical rib shear in concreted haulage drift



Axial shear damage in typical haulage drift



**Diagrams Abstracted From:**  
 Tiobie, Thomas & Richards, San Manuel Mine, Magma Copper Co.  
 SME Mining Engineering Handbook. Vol. 1, Cummings, Given 1973